## TEST RESULTS OF GRADATION FOR WMM

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-03-01** **Date: 04-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 03-08-2018 |
| **Sample ID No** | : | 2018-08-03-01/01 |
| **Type of Mix** | : | WMM ( Wet Mix Macadam) |
| **Date of test** | : | 03-08-2018 |
| **Oven Dry Weight** | : | 11000 Grams |

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 202 | 202 | 1.8 | 98.2 | 95-100 |
| 22.4 | 2275 | 2477 | 22.5 | 77.5 | 60-80 |
| 11.2 | 2758 | 5235 | 47.6 | 52.4 | 40-60 |
| 4.75 | 2378 | 7613 | 69.2 | 30.8 | 25-40 |
| 2.36 | 1499 | 9112 | 82.8 | 17.2 | 15-30 |
| 0.6 | 598 | 9710 | 88.3 | 11.7 | 8-22 |
| 0.075 | 1089 | 10799 | 98.2 | 1.8 | 0-5 |

**Note:-**
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All information Furnished by Customer/ Representative
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FOR CIVIL Pro.
R KARTHIK RECHAN
Authorized Signatory
Quality Manager

CIVIL PRO Sig..... Date..... BANGALORE

# TEST REPORT OF AGGEGRATE IMPACT VALUE
## IS: 2386 Part IV

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-03-01** **Date: 04-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 03-08-2018 |
| **Sample ID No** | : | 2018-08-03-01/01 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of test** | : | 03-08-2018 |

| Sl.No | Particulars of observations | Index | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve) | A | 311.6 | 311.9 |
| 2 | Weight of fraction passing 2.36mm sieve After giving 15 blows | B | 69.6 | 68.8 |
| 3 | weight of fraction retained 2.36mm sieve After giving 15 blows | C | 241.6 | 240.3 |
| 4 | Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made. | A-(B+C) | 0.4 | 2.8 |
| 5 | Aggregate impact value | (B/A)*100 | 22.3 | 22.1 |
| 6 | Aggregate impact value ( Mean of two tests) | Pecentage | 22.2 | |

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AE ward no 6

CIVIL PRO BANGALORE Sig..... Date.....

FOR CIVIL Pro.
R KARTHIK RECHAN
Authorized Signatory
Quality Manager



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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES |

## DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-03-01** **Date: 04-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage, Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 03-08-2018 |
| **Sample ID No** | : | 2018-08-04-01/01 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of test** | : | 03-08-2018 |

**Result:**

| Index | Percentage of Flakiness and Elongation Index | Secified limits as per MORTH specification table 400-12 |
|---|---|---|
| Flakiness Index | 10.2 | Combined Flakiness & Elongation Index for WMM is Maximum 35% |
| Elongation Index | 11.7 | |
| Combined Flakiness and Elongation Index for WMM | 21.9 | |

**Note:-**
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**R KARTHIK RECHAN**
**Authorized Signatory**
**Quality Manager**

CIVIL PRO BANGALORE Sig..... Date.....



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## TEST RESULTS OF GRADATION FOR WMM

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-09-01** **Date: 10-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 09-08-2018 |
| **Sample ID No** | : | 2018-08-09-01/01 |
| **Type of Mix** | : | WMM ( Wet Mix Macadam) |
| **Date of test** | : | 09-08-2018 |
| **Oven Dry Weight** | : | 11000 Grams |

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 230 | 230 | 2.1 | 97.9 | 95-100 |
| 22.4 | 2875 | 3105 | 28.2 | 71.8 | 60-80 |
| 11.2 | 2670 | 5775 | 52.5 | 47.5 | 40-60 |
| 4.75 | 2065 | 7840 | 71.3 | 28.7 | 25-40 |
| 2.36 | 1287 | 9127 | 83.0 | 17.0 | 15-30 |
| 0.6 | 942 | 10069 | 91.5 | 8.5 | 8-22 |
| 0.075 | 692 | 10761 | 97.8 | 2.2 | 0-5 |

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**R KARTHIK RECHAN**
**Authorized Signatory**
**Quality Manager**

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Page 1/1
*End of Report*

## TEST RESULTS OF GRADATION FOR WMM

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-18-01** **Date: 20-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 18-08-2018 |
| **Sample ID No** | : | 2018-08-18-01/01 |
| **Type of Mix** | : | WMM ( Wet Mix Macadam) |
| **Date of test** | : | 18-08-2018 |
| **Oven Dry Weight** | : | 11000 Grams |

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 285 | 285 | 2.6 | 97.4 | 95-100 |
| 22.4 | 2245 | 2530 | 23.0 | 77.0 | 60-80 |
| 11.2 | 2116 | 4646 | 42.2 | 57.8 | 40-60 |
| 4.75 | 2198 | 6844 | 62.2 | 37.8 | 25-40 |
| 2.36 | 1734 | 8578 | 78.0 | 22.0 | 15-30 |
| 0.6 | 860 | 9438 | 85.8 | 14.2 | 8-22 |
| 0.075 | 1378 | 10816 | 98.3 | 1.7 | 0-5 |

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**Authorized Signatory**
**Quality Manager**

Page 1/1
*End of Report*

## TEST REPORT OF AGGEGRATE IMPACT VALUE
### IS: 2386 Part IV

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-18-01** **Date: 20-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 18-08-2018 |
| **Sample ID No** | : | 2018-08-18-01/01 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of test** | : | 18-08-2018 |

| Sl.No | Particulars of observations | Index | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve) | A | 304.2 | 304.2 |
| 2 | Weight of fraction passing 2.36mm sieve After giving 15 blows | B | 74.1 | 74.2 |
| 3 | weight of fraction retained 2.36mm sieve After giving 15 blows | C | 228.9 | 228.6 |
| 4 | Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made. | A-(B+C) | 1.2 | 1.4 |
| 5 | Aggregate impact value | (B/A)*100 | 24.4 | 24.4 |
| 6 | Aggregate impact value ( Mean of two tests) | Pecentage | 24.4 | |

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**R KARTHIK RECHAN**
**Authorized Signatory**
**Quality Manager**


*End of Report*

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## DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-18-01** **Date: 20-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 18-08-2018 |
| **Sample ID No** | : | 2018-08-18-01/01 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of test** | : | 18-08-2018 |

**Result:**

| Index | Percentage of Flakiness and Elongation Index | Secified limits as per MORTH specification table 400-12 |
|---|---|---|
| Flakiness Index | 13.9% | Combined Flakiness & Elongation Index for WMM is Maximum 35% |
| Elongation Index | 14.6% | |
| Combined Flakiness and Elongation Index for WMM | 28.5% | |

**Note:-**
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**Authorized Signatory**
**Quality Manager**

Sig
Date



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## TEST RESULTS OF GRADATION FOR WMM

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-21-01** **Date: 23-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 21-08-2018 |
| **Sample ID No** | : | 2018-08-21-01/01 |
| **Type of Mix** | : | WMM ( Wet Mix Macadam) |
| **Date of test** | : | 21-08-2018 |
| **Oven Dry Weight** | : | 11000 Grams |

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 311 | 311 | 2.8 | 97.2 | 95-100 |
| 22.4 | 2265 | 2576 | 23.4 | 76.6 | 60-80 |
| 11.2 | 2167 | 4743 | 43.1 | 56.9 | 40-60 |
| 4.75 | 2257 | 7000 | 63.6 | 36.4 | 25-40 |
| 2.36 | 1642 | 8642 | 78.6 | 21.4 | 15-30 |
| 0.6 | 640 | 9282 | 84.4 | 15.6 | 8-22 |
| 0.075 | 1420 | 10702 | 97.3 | 2.7 | 0-5 |

**Note:-**

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**Authorized Signatory**
**Quality Manager**

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## TEST RESULTS OF GRADATION FOR WMM

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-06-29-01** **Date: 30-06-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 29-06-2018 |
| **Sample ID No** | : | 2018-06-29-01/01 |
| **Type of Mix** | : | WMM ( Wet Mix Macadam) |
| **Date of test** | : | 29-06-2018 |
| **Oven Dry Weight** | : | 11000 Grams |

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 317 | 317 | 2.9 | 97.1 | 95-100 |
| 22.4 | 2274 | 2591 | 23.6 | 76.4 | 60-80 |
| 11.2 | 2187 | 4778 | 43.4 | 56.6 | 40-60 |
| 4.75 | 2272 | 7050 | 64.1 | 35.9 | 25-40 |
| 2.36 | 1632 | 8682 | 78.9 | 21.1 | 15-30 |
| 0.6 | 625 | 9307 | 84.6 | 15.4 | 8-22 |
| 0.075 | 1351 | 10658 | 96.9 | 3.1 | 0-5 |

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CIVIL Pro Sig..... Date..... BANGALORE

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**R KARTHIK RECHAN**
**Authorized Signatory**
**Quality Manager**

## TEST REPORT OF AGGEGRATE IMPACT VALUE
### IS: 2386 Part IV

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-06-29-01** **Date: 30-06-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 29-06-2018 |
| **Sample ID No** | : | 2018-06-29-01/01 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of test** | : | 29-06-2018 |

| Sl.No | Particulars of observations | Index | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve) | A | 311.6 | 310.9 |
| 2 | Weight of fraction passing 2.36mm sieve After giving 15 blows | B | 69.6 | 68.4 |
| 3 | weight of fraction retained 2.36mm sieve After giving 15 blows | C | 241.6 | 242.3 |
| 4 | Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made. | A-(B+C) | 0.4 | 0.3 |
| 5 | Aggregate impact value | (B/A)*100 | 22.3 | 22.0 |
| 6 | Aggregate impact value ( Mean of two tests) | Pecentage | 22.2 | |

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**R KARTHIK RECHAN**
**Authorized Signatory**
**Quality Manager**

CIVIL PRO Sig..... Date..... BANGALORE



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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES |

## DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-06-29-01** **Date: 30-06-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 29-06-2018 |
| **Sample ID No** | : | 2018-06-29-01/01 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of test** | : | 29-06-2018 |

**Result:**

| Index | Percentage of Flakiness and Elongation Index | Secified limits as per MORTH specification table 400-12 |
|---|---|---|
| Flakiness Index | 10.5% | Combined Flakiness & Elongation Index for WMM is Maximum 35% |
| Elongation Index | 11.7% | |
| Combined Flakiness and Elongation Index for WMM | 22.2% | |

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**R KARTHIK RECHAN**
**Authorized Signatory**
**Quality Manager**

CIVIL Pro Sig..... Date..... BANGALORE



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## TEST RESULTS OF GRADATION FOR WMM

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-02-02** **Date: 03-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 02-07-2018 |
| **Sample ID No** | : | 2018-07-02-02/01 |
| **Type of Mix** | : | WMM ( Wet Mix Macadam) |
| **Date of test** | : | 02-07-2018 |
| **Oven Dry Weight** | : | 11000 Grams |

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 312 | 312 | 2.8 | 97.2 | 95-100 |
| 22.4 | 3059 | 3371 | 30.6 | 69.4 | 60-80 |
| 11.2 | 2895 | 6266 | 57.0 | 43.0 | 40-60 |
| 4.75 | 1794 | 8060 | 73.3 | 26.7 | 25-40 |
| 2.36 | 1257 | 9317 | 84.7 | 15.3 | 15-30 |
| 0.6 | 750 | 10067 | 91.5 | 8.5 | 8-22 |
| 0.075 | 721 | 10788 | 98.1 | 1.9 | 0-5 |

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager



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## TEST RESULTS OF GRADATION FOR WMM

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-23-01** **Date: 24-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 23-07-2018 |
| **Sample ID No** | : | 2018-07-23-01/01 |
| **Type of Mix** | : | WMM ( Wet Mix Macadam) |
| **Date of test** | : | 23-07-2018 |
| **Oven Dry Weight** | : | 11000 Grams |

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 326 | 326 | 3.0 | 97.0 | 95-100 |
| 22.4 | 2263 | 2589 | 23.5 | 76.5 | 60-80 |
| 11.2 | 2176 | 4765 | 43.3 | 56.7 | 40-60 |
| 4.75 | 2262 | 7027 | 63.9 | 36.1 | 25-40 |
| 2.36 | 1609 | 8636 | 78.5 | 21.5 | 15-30 |
| 0.6 | 618 | 9254 | 84.1 | 15.9 | 8-22 |
| 0.075 | 1354 | 10608 | 96.4 | 3.6 | 0-5 |

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**FOR CIVIL Pro.**
**R KARTHIK RECHAN**
**Authorized Signatory**
**Quality Manager**

CIVIL Pro Sig..... Date..... BANGALORE



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## TEST REPORT OF AGGEGRATE IMPACT VALUE
### IS: 2386 Part IV

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-23-01** **Date: 24-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 23-07-2018 |
| **Sample ID No** | : | 2018-07-23-01/01 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of test** | : | 23-07-2018 |

| Sl.No | Particulars of observations | Index | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve) | A | 304.2 | 304.2 |
| 2 | Weight of fraction passing 2.36mm sieve After giving 15 blows | B | 73.9 | 74.0 |
| 3 | weight of fraction retained 2.36mm sieve After giving 15 blows | C | 229.9 | 229.9 |
| 4 | Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made. | A-(B+C) | 0.4 | 0.3 |
| 5 | Aggregate impact value | (B/A)*100 | 24.3 | 24.3 |
| 6 | Aggregate impact value ( Mean of two tests) | Pecentage | 24.3 | |

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**Authorized Signatory**
**Quality Manager**


*End of Report*

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## DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-23-01** **Date: 24-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 23-07-2018 |
| **Sample ID No** | : | 2018-07-23-01/01 |
| **Type of Mix** | : | Coarse Aggregate for WMM ( Wet Mix Macadam) |
| **Date of test** | : | 23-07-2018 |

**Result:**

| Index | Percentage of Flakiness and Elongation Index | Secified limits as per MORTH specification table 400-12 |
|---|---|---|
| Flakiness Index | 14.9% | Combined Flakiness & Elongation Index for WMM is Maximum 35% |
| Elongation Index | 13.6% | |
| Combined Flakiness and Elongation Index for WMM | 28.5% | |

**Note:-**
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**Authorized Signatory**
**Quality Manager**

Page 1/1
*End of Report*

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## TEST RESULTS OF GRADATION FOR WMM

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-28-01** **Date: 30-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 28-07-2018 |
| **Sample ID No** | : | 2018-07-28-01/01 |
| **Type of Mix** | : | WMM ( Wet Mix Macadam) |
| **Date of test** | : | 28-07-2018 |
| **Oven Dry Weight** | : | 11000 Grams |

| IS Sieve Size(mm) | Weight Retained (gm) | Cumulative Weight Retained (gm) | % Cumulative Weight Retained | % Passing | Spec.I.Vide Table 400.13 MORTH Specification |
|---|---|---|---|---|---|
| 53 | 0 | 0 | 0.0 | 100.0 | 100 |
| 45 | 317 | 317 | 2.9 | 97.1 | 95-100 |
| 22.4 | 2274 | 2591 | 23.6 | 76.4 | 60-80 |
| 11.2 | 2187 | 4778 | 43.4 | 56.6 | 40-60 |
| 4.75 | 2272 | 7050 | 64.1 | 35.9 | 25-40 |
| 2.36 | 1632 | 8682 | 78.9 | 21.1 | 15-30 |
| 0.6 | 625 | 9307 | 84.6 | 15.4 | 8-22 |
| 0.075 | 1351 | 10658 | 96.9 | 3.1 | 0-5 |

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**R KARTHIK RECHAN**
**Authorized Signatory**
**Quality Manager**

CIVIL PRO Sig..... Date..... BANGALORE



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Format No: CP/TF/01

## TEST REPORT ON BITUMEN

| | | |
|---|---|---|
| **Lab ID** | : | **CP-2018-07-02-01** **Date: 03-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer's Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 02-07-2018 |
| **Sample ID No** | : | 2018-07-02-01/01 |
| **Sample Type** | : | Bitumen |
| **Reference to BIS codes** | : | IS: 1201-1220(1978) (Reaffirmed-2004) |
| **Date of test** | : | 02-07-2018 |

**Test Results**

| Sl.no | Name of Test | Result | Requirements as per IS:73-2013 |
|---|---|---|---|
| 1 | Penetration at 25°C , in 1/10th mm | **66** | 60 to 70 |
| 2 | Softening Point, °C | **46.2** | Min. 40°C |
| 3 | Ductility, cm | **99** | Min. 75cm |
| 4 | Flash point, °C | **232** | Min. 220°C |
| | Fire point, °C | **248.5** | |

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**R KARTHIK RECHAN**
Authorized Signatory
**Quality Manager**

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## TEST RESULTS OF GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2007 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-04-01** **Date: 06-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 04-07-2018 |
| **Sample ID No** | : | 2018-07-04-01/01 |
| **Type of Mix** | : | BC-Plant (Bituminous Concrete) |
| **Date of test** | : | 04-07-2018 |
| **Oven Dry Weight** | : | 5000 Grams |

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-17(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 72 | 72 | 1.4 | 98.6 | 90-100 |
| 9.5 | 801 | 873 | 17.5 | 82.5 | 70-88 |
| 4.75 | 1005 | 1878 | 37.6 | 62.4 | 53-71 |
| 2.36 | 389 | 2267 | 45.3 | 54.7 | 42-58 |
| 1.18 | 422 | 2689 | 53.8 | 46.2 | 34-48 |
| 0.6 | 573 | 3262 | 65.2 | 34.8 | 26-38 |
| 0.3 | 551 | 3813 | 76.3 | 23.7 | 18-28 |
| 0.15 | 455 | 4268 | 85.4 | 14.6 | 12-20 |
| 0.075 | 324 | 4592 | 91.8 | 8.2 | 4-10 |
| PAN | 408 | 5000 | 100 | 0.0 | 0 |

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**Authorized Signatory**
**Quality Manager**

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## PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-04-01** **Date: 07-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 04-07-2018 |
| **Sample ID No** | : | 2018-07-04-01/01 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 04-07-2018 |

**Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete**

| Property | Test | Result | Specification | Method of Test |
|---|---|---|---|---|
| Partical Shape | Flakiness Index | 9.8 | Combined Flakiness & Elongation Index for BC is Maximum 35% | IS:2386 Part I |
| | Elongation Index | 10.4 | | |
| Strength | Aggregate Impact Value | 21.5 | Maximum 24% | IS:2386 Part IV |
| Specific gravity | Specific gravity | 2.59 | Maximum 2.7 | IS:2386 Part III |
| Water Absorption | Water Absorption | 0.21 | Maximum 2% | IS:2386 Part III |

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**Quallity Manager**

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES |

## TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-04-01** **Date: 07-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Sample Supplied by Agency |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 04-07-2018 |
| **Sample ID No** | : | 2018-07-04-01/01 |
| **Type of Mix** | : | BC(Bitumenous Concrete) |
| **Date of test** | : | 04-07-2018 |
| **Type of Binder** | : | 60/70 |
| **% of Binder Used** | : | 5.0% |
| **Weight of Aggregate** | : | 200.0 gm |
| **Weight of Binder** | : | 10.0 gm |
| **Temperature of water bath** | : | 40°C |

| No of test | Retained Stripping Percentage | Stripping Percentage | Average Retained Stripping Percentage | Secified limits as per MORTH specification table 500-8 |
|---|---|---|---|---|
| 1 | 98.5 | 1.5 | 98.3 | Minimum Retained Coating 95% |
| 2 | 99.0 | 1.0 | | |
| 3 | 97.5 | 2.5 | | |

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**Quality Manager**

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## TESTS RESULTS ON STABILITY OF MIX

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-04-01** **Date: 07-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Source of Sample** | : | Hot Mix Plant, Bangalore |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 04-07-2018 |
| **Sample ID No** | : | 2018-07-04-01/01 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 04-07-2018 |

**The results of the tests conducted on the Bituminous Concrete mix sample are as follow**

| Sl.No | Particulars of observations | TEST 1 | TEST 2 | Secified limits as per MORTH specification table 500-11 |
|---|---|---|---|---|
| 1 | Marshal Stability at 60°C, KN | 11.14 | 11.03 | 10KN(min) |
| 2 | Marshal flow at 60°C, mm | 3.52 | 3.61 | 2-4 |
| 3 | Percent air Voids | 4.82 | 4.73 | 3-5 |
| 4 | Percent Voids in mineral Aggregate(VMA %) | 14.28 | 14.16 | 13-15 |
| 5 | Percent Voids filled with Bitumen(VFB %) | 71.87 | 70.63 | 65-75 |
| 6 | Density, g/cc | 2.25 | 2.26 | – |

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**Quality Manager**

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## DETERMINATION OF RATE OF SPREAD TACK COAT

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-09-01** **Date: 10-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 09-07-2018 |
| **Sample ID No** | : | 2018-07-09-01/01 |
| **Type of Mix** | : | Tack coat |
| **Date of test** | : | 09-07-2018 |

| Sl.No | Determination | Unit | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Size of Plate (mxm) | Mt | 0.30 x .30 | 0.30 x .30 |
| 2 | Area of Plate (a) | Sq.mtr | 0.09 | 0.09 |
| 3 | Initial Wt of empty Plate (b) | Kg | 0.78 | 0.748 |
| 4 | Final weight of plate after application of tack Coat ( c) | Kg | 0.803 | 0.771 |
| 5 | Weight of tack Coat (d=c-b) | Kg | 0.023 | 0.023 |
| 6 | Rate of spread of tack coat | Kg/sq.m | 0.256 | 0.256 |
| 7 | Average | Kg/sq.m | 0.256 | |
| 8 | Specified Limit | Kg/sq.m | 0.250 Kg/sq.m | |

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## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2011 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-09-01** **Date: 10-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Date of Receipt** | : | 09-07-2018 |
| **Sample ID No** | : | 2018-07-09-01/02 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 09-07-2018 |

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 505 | 504 |
| 2 | Weight of the sample After extraction | B | 474 | 473 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 6.14 | 6.15 |
| 4 | Average percentage | % | 6.1 | |

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**Authorized Signatory**
**Quality Manager**

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**Lab ID** : **CP-RW-2018-07-09-01** **Date: 10-07-2018**

**Sample ID** : **2018-07-09-01/02**

**AFTER EXTRACTION - Trail-1**

**Total Weight of the Sample(gm)** : 474

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 6 | 6 | 1.3 | 98.7 | 90-100 |
| 9.5 | 59 | 65 | 13.7 | 86.3 | 70-88 |
| 4.75 | 128 | 193 | 40.7 | 59.3 | 53-71 |
| 2.36 | 72 | 265 | 55.9 | 44.1 | 42-58 |
| 1.18 | 29 | 294 | 62.0 | 38.0 | 34-48 |
| 0.6 | 17 | 311 | 65.6 | 34.4 | 26-38 |
| 0.3 | 37 | 348 | 73.4 | 26.6 | 18-28 |
| 0.15 | 39 | 387 | 81.6 | 18.4 | 12-20 |
| 0.075 | 56 | 443 | 93.5 | 6.5 | 4-10 |

**AFTER EXTRACTION - Trail-2**

**Total Weight of the Sample(gm)** : 473

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 7 | 7 | 1.5 | 98.5 | 90-100 |
| 9.5 | 55 | 62 | 13.1 | 86.9 | 70-88 |
| 4.75 | 130 | 192 | 40.6 | 59.4 | 53-71 |
| 2.36 | 75 | 267 | 56.4 | 43.6 | 42-58 |
| 1.18 | 27 | 294 | 62.2 | 37.8 | 34-48 |
| 0.6 | 22 | 316 | 66.8 | 33.2 | 26-38 |
| 0.3 | 42 | 358 | 75.7 | 24.3 | 18-28 |
| 0.15 | 36 | 394 | 83.3 | 16.7 | 12-20 |
| 0.075 | 53 | 447 | 94.5 | 5.5 | 4-10 |

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Page 2/2
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## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2011 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-09-01** **Date: 10-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Date of Receipt** | : | 09-07-2018 |
| **Sample ID No** | : | 2018-07-09-01/01 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 09-07-2018 |

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 501 | 502 |
| 2 | Weight of the sample After extraction | B | 471 | 472 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 5.99 | 5.98 |
| 4 | Average percentage | % | 6.0 | |

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

**Lab ID** : **CP-RW-2018-07-09-01** **Date: 10-07-2018**

**Sample ID** : **2018-07-09-01/01**

**AFTER EXTRACTION - Trail-1**

**Total Weight of the Sample(gm)** : 471

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 5 | 5 | 1.1 | 98.9 | 90-100 |
| 9.5 | 67 | 72 | 15.3 | 84.7 | 70-88 |
| 4.75 | 135 | 207 | 43.9 | 56.1 | 53-71 |
| 2.36 | 50 | 257 | 54.6 | 45.4 | 42-58 |
| 1.18 | 35 | 292 | 62.0 | 38.0 | 34-48 |
| 0.6 | 28 | 320 | 67.9 | 32.1 | 26-38 |
| 0.3 | 55 | 375 | 79.6 | 20.4 | 18-28 |
| 0.15 | 31 | 406 | 86.2 | 13.8 | 12-20 |
| 0.075 | 42 | 448 | 95.1 | 4.9 | 4-10 |

**AFTER EXTRACTION - Trail-2**

**Total Weight of the Sample(gm)** : 472

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 7 | 7 | 1.5 | 98.5 | 90-100 |
| 9.5 | 62 | 69 | 14.6 | 85.4 | 70-88 |
| 4.75 | 131 | 200 | 42.4 | 57.6 | 53-71 |
| 2.36 | 67 | 267 | 56.6 | 43.4 | 42-58 |
| 1.18 | 36 | 303 | 64.2 | 35.8 | 34-48 |
| 0.6 | 30 | 333 | 70.6 | 29.4 | 26-38 |
| 0.3 | 41 | 374 | 79.2 | 20.8 | 18-28 |
| 0.15 | 28 | 402 | 85.2 | 14.8 | 12-20 |
| 0.075 | 44 | 446 | 94.5 | 5.5 | 4-10 |

**Note:-**

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**R KARTHIK RECHAN**
**Authorized Signatory**
**Quality Manager**


*End of Report*

## DETERMINATION OF RATE OF SPREAD TACK COAT

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-11-01** **Date: 12-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 11-07-2018 |
| **Sample ID No** | : | 2018-07-11-01/01 |
| **Type of Mix** | : | Tack coat |
| **Date of test** | : | 11-07-2018 |

| Sl.No | Determination | Unit | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Size of Plate (mxm) | Mt | 0.30 x .30 | 0.30 x .30 |
| 2 | Area of Plate (a) | Sq.mtr | 0.09 | 0.09 |
| 3 | Initial Wt of empty Plate (b) | Kg | 0.785 | 0.752 |
| 4 | Final weight of plate after application of tack Coat ( c) | Kg | 0.808 | 0.775 |
| 5 | Weight of tack Coat (d=c-b) | Kg | 0.023 | 0.023 |
| 6 | Rate of spread of tack coat | Kg/sq.m | 0.256 | 0.256 |
| 7 | Average | Kg/sq.m | 0.256 | |
| 8 | Specified Limit | Kg/sq.m | 0.250 Kg/sq.m | |

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**Quality Manager**

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M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2011 )

**Lab ID** : **CP-RW-2018-07-11-01** **Date: 12-07-2018**

**Customer** : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

**Address** : Byatarayanapura Sub Division, BBMP, Bangalore.

**Project Name** : Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

**Name Of Work** : Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

**Agency** : Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008.

**Customer Reference** : BBMP/EE/BTP/WO/10/2018-19

**Consultants** : M/s Rudraprasad Consultants

**Date of Receipt** : 11-07-2018

**Sample ID No** : 2018-07-11-01/01

**Type of Mix** : BC (Bituminous Concrete)

**Date of test** : 11-07-2018

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 505 | 503 |
| 2 | Weight of the sample After extraction | B | 474 | 472 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 6.14 | 6.16 |
| 4 | Average percentage | % | 6.2 | |

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**Quality Manager**

CIVIL Pro Sig..... Date..... BANGALORE



M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

**Lab ID** : **CP-RW-2018-07-11-01** **Date: 12-07-2018**

**Sample ID** : **2018-07-11-01/01**

**AFTER EXTRACTION - Trail-1**

**Total Weight of the Sample(gm)** : 474

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 2 | 2 | 0.4 | 99.6 | 90-100 |
| 9.5 | 58 | 60 | 12.7 | 87.3 | 70-88 |
| 4.75 | 135 | 195 | 41.1 | 58.9 | 53-71 |
| 2.36 | 76 | 271 | 57.2 | 42.8 | 42-58 |
| 1.18 | 34 | 305 | 64.3 | 35.7 | 34-48 |
| 0.6 | 21 | 326 | 68.8 | 31.2 | 26-38 |
| 0.3 | 34 | 360 | 75.9 | 24.1 | 18-28 |
| 0.15 | 45 | 405 | 85.4 | 14.6 | 12-20 |
| 0.075 | 35 | 440 | 92.8 | 7.2 | 4-10 |

**AFTER EXTRACTION - Trail-2**

**Total Weight of the Sample(gm)** : 472

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 3 | 3 | 0.6 | 99.4 | 90-100 |
| 9.5 | 61 | 64 | 13.6 | 86.4 | 70-88 |
| 4.75 | 132 | 196 | 41.5 | 58.5 | 53-71 |
| 2.36 | 71 | 267 | 56.6 | 43.4 | 42-58 |
| 1.18 | 36 | 303 | 64.2 | 35.8 | 34-48 |
| 0.6 | 25 | 328 | 69.5 | 30.5 | 26-38 |
| 0.3 | 35 | 363 | 76.9 | 23.1 | 18-28 |
| 0.15 | 53 | 416 | 88.1 | 11.9 | 12-20 |
| 0.075 | 38 | 454 | 96.2 | 3.8 | 4-10 |

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## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2011 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-07-11-01** **Date: 12-07-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Date of Receipt** | : | 11-07-2018 |
| **Sample ID No** | : | 2018-07-11-01/02 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 11-07-2018 |

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 504 | 505 |
| 2 | Weight of the sample After extraction | B | 473 | 474 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 6.15 | 6.14 |
| 4 | Average percentage | % | 6.1 | |

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

**Lab ID** : **CP-RW-2018-07-11-01** **Date: 12-07-2018**

**Sample ID** : **2018-07-11-01/02**

**AFTER EXTRACTION - Trail-1**

**Total Weight of the Sample(gm)** : 473

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 0 | 0 | 0.0 | 100.0 | 90-100 |
| 9.5 | 59 | 59 | 12.5 | 87.5 | 70-88 |
| 4.75 | 133 | 192 | 40.6 | 59.4 | 53-71 |
| 2.36 | 68 | 260 | 55.0 | 45.0 | 42-58 |
| 1.18 | 34 | 294 | 62.2 | 37.8 | 34-48 |
| 0.6 | 23 | 317 | 67.0 | 33.0 | 26-38 |
| 0.3 | 28 | 345 | 72.9 | 27.1 | 18-28 |
| 0.15 | 35 | 380 | 80.3 | 19.7 | 12-20 |
| 0.075 | 65 | 445 | 94.1 | 5.9 | 4-10 |

**AFTER EXTRACTION - Trail-2**

**Total Weight of the Sample(gm)** : 474

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 0 | 0 | 0.0 | 100.0 | 90-100 |
| 9.5 | 57 | 57 | 12.0 | 88.0 | 70-88 |
| 4.75 | 131 | 188 | 39.7 | 60.3 | 53-71 |
| 2.36 | 67 | 255 | 53.8 | 46.2 | 42-58 |
| 1.18 | 37 | 292 | 61.6 | 38.4 | 34-48 |
| 0.6 | 27 | 319 | 67.3 | 32.7 | 26-38 |
| 0.3 | 25 | 344 | 72.6 | 27.4 | 18-28 |
| 0.15 | 31 | 375 | 79.1 | 20.9 | 12-20 |
| 0.075 | 68 | 443 | 93.5 | 6.5 | 4-10 |

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**Authorized Signatory**
**Quality Manager**

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## DETERMINATION OF RATE OF SPREAD TACK COAT

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-04-01** **Date: 06-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Sample Condition** | : | Satisfactory |
| **Date of Receipt** | : | 04-08-2018 |
| **Sample ID No** | : | 2018-08-04-01/01 |
| **Type of Mix** | : | Tack coat |
| **Date of test** | : | 04-08-2018 |

| Sl.No | Determination | Unit | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Size of Plate (mxm) | Mt | 0.30 x .30 | 0.30 x .30 |
| 2 | Area of Plate (a) | Sq.mtr | 0.09 | 0.09 |
| 3 | Initial Wt of empty Plate (b) | Kg | 0.779 | 0.746 |
| 4 | Final weight of plate after application of tack Coat ( c) | Kg | 0.802 | 0.769 |
| 5 | Weight of tack Coat (d=c-b) | Kg | 0.023 | 0.023 |
| 6 | Rate of spread of tack coat | Kg/sq.m | 0.256 | 0.256 |
| 7 | Average | Kg/sq.m | 0.256 | |
| 8 | Specified Limit | Kg/sq.m | 0.250 Kg/sq.m | |

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**Quality Manager**

Page 1/1
*End of Report*

## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2011 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-04-01** **Date: 06-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Date of Receipt** | : | 04-08-2018 |
| **Sample ID No** | : | 2018-08-04-01/01 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 04-08-2018 |

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 505 | 505 |
| 2 | Weight of the sample After extraction | B | 474 | 475 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 6.1 | 5.9 |
| 4 | Average percentage | % | 6.0 | |

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ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

**Lab ID** : **CP-RW-2018-08-04-01**

**Sample ID** : **2018-08-04-01/01**

**Date: 06-08-2018**

**AFTER EXTRACTION - Trail-1**

**Total Weight of the Sample(gm)** : 474

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 0 | 0 | 0.0 | 100.0 | 90-100 |
| 9.5 | 69 | 69 | 14.6 | 85.4 | 70-88 |
| 4.75 | 128 | 197 | 41.6 | 58.4 | 53-71 |
| 2.36 | 57 | 254 | 53.6 | 46.4 | 42-58 |
| 1.18 | 29 | 283 | 59.7 | 40.3 | 34-48 |
| 0.6 | 12 | 295 | 62.2 | 37.8 | 26-38 |
| 0.3 | 49 | 344 | 72.6 | 27.4 | 18-28 |
| 0.15 | 45 | 389 | 82.1 | 17.9 | 12-20 |
| 0.075 | 41 | 430 | 90.7 | 9.3 | 4-10 |

**AFTER EXTRACTION - Trail-2**

**Total Weight of the Sample(gm)** : 475

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 0 | 0 | 0.0 | 100.0 | 90-100 |
| 9.5 | 67 | 67 | 14.1 | 85.9 | 70-88 |
| 4.75 | 137 | 204 | 42.9 | 57.1 | 53-71 |
| 2.36 | 62 | 266 | 56.0 | 44.0 | 42-58 |
| 1.18 | 31 | 297 | 62.5 | 37.5 | 34-48 |
| 0.6 | 9 | 306 | 64.4 | 35.6 | 26-38 |
| 0.3 | 37 | 343 | 72.2 | 27.8 | 18-28 |
| 0.15 | 38 | 381 | 80.2 | 19.8 | 12-20 |
| 0.075 | 48 | 429 | 90.3 | 9.7 | 4-10 |

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-26

## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2011 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-04-01** **Date: 06-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Date of Receipt** | : | 04-08-2018 |
| **Sample ID No** | : | 2018-08-04-01/02 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 04-08-2018 |

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 500 | 500 |
| 2 | Weight of the sample After extraction | B | 469 | 470 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 6.20 | 6.00 |
| 4 | Average percentage | % | 6.1 | |

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**Authorized Signatory**
**Quality Manager**

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ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-26

**Lab ID** : **CP-RW-2018-08-04-01** **Date: 06-08-2018**

**Sample ID** : **2018-08-04-01/02**

**AFTER EXTRACTION - Trail-1**

**Total Weight of the Sample(gm)** : 469

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 17 | 17 | 3.6 | 96.4 | 90-100 |
| 9.5 | 92 | 109 | 23.2 | 76.8 | 70-88 |
| 4.75 | 100 | 209 | 44.6 | 55.4 | 53-71 |
| 2.36 | 51 | 260 | 55.4 | 44.6 | 42-58 |
| 1.18 | 25 | 285 | 60.8 | 39.2 | 34-48 |
| 0.6 | 24 | 309 | 65.9 | 34.1 | 26-38 |
| 0.3 | 41 | 350 | 74.6 | 25.4 | 18-28 |
| 0.15 | 42 | 392 | 83.6 | 16.4 | 12-20 |
| 0.075 | 52 | 444 | 94.7 | 5.3 | 4-10 |

**AFTER EXTRACTION - Trail-2**

**Total Weight of the Sample(gm)** : 470

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 15 | 15 | 3.2 | 96.8 | 90-100 |
| 9.5 | 89 | 104 | 22.1 | 77.9 | 70-88 |
| 4.75 | 95 | 199 | 42.3 | 57.7 | 53-71 |
| 2.36 | 52 | 251 | 53.4 | 46.6 | 42-58 |
| 1.18 | 28 | 279 | 59.4 | 40.6 | 34-48 |
| 0.6 | 21 | 300 | 63.8 | 36.2 | 26-38 |
| 0.3 | 51 | 351 | 74.7 | 25.3 | 18-28 |
| 0.15 | 45 | 396 | 84.3 | 15.7 | 12-20 |
| 0.075 | 61 | 457 | 97.2 | 2.8 | 4-10 |

**Note:-**

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**R KARTHIK RECHAN**
**Authorized Signatory**
**Quality Manager**

Page 2/2
*End of Report*

ಸಹಾಯಕ ನಿರ್ದೇಶಕರು ಗುಣಮಟ್ಟ ನಿಯಂತ್ರಣ
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿ.ಬಿ.ಎಂ.ಪಿ., ಬೆಂಗಳೂರು-24

## DETERMINATION OF RATE OF SPREAD TACK COAT

**Lab ID** : **CP-RW-2018-08-07-01** **Date: 08-08-2018**

**Customer** : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

**Address** : Byatarayanapura Sub Division, BBMP, Bangalore.

**Project Name** : Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

**Name of Work** : Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

**Agency** : Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560008.

**Customer Reference** : BBMP/EE/BTP/WO/10/2018-19

**Consultants** : M/s Rudraprasad Consultants

**Sample Condition** : Satisfactory

**Date of Receipt** : 07-08-2018

**Sample ID No** : 2018-08-07-01/01

**Type of Mix** : Tack coat

**Date of test** : 07-08-2018

| Sl.No | Determination | Unit | TEST 1 | TEST 2 |
|---|---|---|---|---|
| 1 | Size of Plate (mxm) | Mt | 0.30 x .30 | 0.30 x .30 |
| 2 | Area of Plate (a) | Sq.mtr | 0.09 | 0.09 |
| 3 | Initial Wt of empty Plate (b) | Kg | 0.79 | 0.75 |
| 4 | Final weight of plate after application of tack Coat ( c) | Kg | 0.813 | 0.773 |
| 5 | Weight of tack Coat (d=c-b) | Kg | 0.023 | 0.023 |
| 6 | Rate of spread of tack coat | Kg/sq.m | 0.256 | 0.256 |
| 7 | Average | Kg/sq.m | 0.256 | |
| 8 | Specified Limit | Kg/sq.m | 0.250 Kg/sq.m | |

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**Authorized Signatory**
**Quality Manager**

CIVIL PRO Sig..... Date..... BANGALORE



M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2011 )

**Lab ID** : **CP-RW-2018-08-07-01** **Date: 08-08-2018**

**Customer** : Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore.

**Address** : Byatarayanapura Sub Division, BBMP, Bangalore.

**Project Name** : Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

**Name Of Work** : Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division.

**Agency** : Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008.

**Customer Reference** : BBMP/EE/BTP/WO/10/2018-19

**Consultants** : M/s Rudraprasad Consultants

**Date of Receipt** : 07-08-2018

**Sample ID No** : 2018-08-07-01/01

**Type of Mix** : BC (Bituminous Concrete)

**Date of test** : 07-08-2018

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 505 | 503 |
| 2 | Weight of the sample After extraction | B | 474 | 472 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 6.14 | 6.16 |
| 4 | Average percentage | % | 6.2 | |

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**Authorized Signatory**
**Quality Manager**

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**Lab ID** : **CP-RW-2018-08-07-01** **Date: 08-08-2018**

**Sample ID** : **2018-08-07-01/01**

**AFTER EXTRACTION - Trail-1**

**Total Weight of the Sample(gm)** : 474

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 2 | 2 | 0.4 | 99.6 | 90-100 |
| 9.5 | 58 | 60 | 12.7 | 87.3 | 70-88 |
| 4.75 | 135 | 195 | 41.1 | 58.9 | 53-71 |
| 2.36 | 76 | 271 | 57.2 | 42.8 | 42-58 |
| 1.18 | 34 | 305 | 64.3 | 35.7 | 34-48 |
| 0.6 | 21 | 326 | 68.8 | 31.2 | 26-38 |
| 0.3 | 34 | 360 | 75.9 | 24.1 | 18-28 |
| 0.15 | 45 | 405 | 85.4 | 14.6 | 12-20 |
| 0.075 | 35 | 440 | 92.8 | 7.2 | 4-10 |

**AFTER EXTRACTION - Trail-2**

**Total Weight of the Sample(gm)** : 472

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 3 | 3 | 0.6 | 99.4 | 90-100 |
| 9.5 | 61 | 64 | 13.6 | 86.4 | 70-88 |
| 4.75 | 132 | 196 | 41.5 | 58.5 | 53-71 |
| 2.36 | 71 | 267 | 56.6 | 43.4 | 42-58 |
| 1.18 | 36 | 303 | 64.2 | 35.8 | 34-48 |
| 0.6 | 25 | 328 | 69.5 | 30.5 | 26-38 |
| 0.3 | 35 | 363 | 76.9 | 23.1 | 18-28 |
| 0.15 | 53 | 416 | 88.1 | 11.9 | 12-20 |
| 0.075 | 38 | 454 | 96.2 | 3.8 | 4-10 |

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Page 2/2
*End of Report*

## TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
## IS 2386 (Part 1) 1963 (RA 2011 )

| | | |
|---|---|---|
| **Lab ID** | : | **CP-RW-2018-08-07-01** **Date: 08-08-2018** |
| **Customer** | : | Assistant Executive Engineer, Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Address** | : | Byatarayanapura Sub Division, BBMP, Bangalore. |
| **Project Name** | : | Package-2, includes 5 works of Rs.245.00 lakhs 1) Improvements to Roads and drains at Mariyannapalya Church to Defence Layout and Dynasty Layout in Ward No.06 Byatarayanapura Sub Division. 2) Improvements to Drains and Asphalting to roads at Balaji Layout near Railway Gate in Ward No.06 Byatarayanapura Sub Division. 3) Improvements to Drains and Asphalting to Roads at Vidyasagara Layout and Surrounding area in Ward No.06 Byatarayanapura Sub Division. 4) Improvements to Drains and asphalting to roads at Bharathnagara Saw mill road in Ward No.06 Byatarayanapura Sub Division. 5) Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Name Of Work** | : | Improvements to Drains and asphalting to Roads at Shiradi Sai Nagara and Hegadenagara in Ward No.06 Bytarayanapura Sub Division. |
| **Agency** | : | Sri.G.Venkatesh, No.623/A, 11th main, HAL 2nd Stage Indiranagar, Bangalore-560 008. |
| **Customer Reference** | : | BBMP/EE/BTP/WO/10/2018-19 |
| **Consultants** | : | M/s Rudraprasad Consultants |
| **Date of Receipt** | : | 07-08-2018 |
| **Sample ID No** | : | 2018-08-07-01/02 |
| **Type of Mix** | : | BC (Bituminous Concrete) |
| **Date of test** | : | 07-08-2018 |

| Sl.no | Description | Index | Trail 1 | Trail 2 |
|---|---|---|---|---|
| 1 | Weight of the Sample | A | 503 | 502 |
| 2 | Weight of the sample After extraction | B | 471 | 472 |
| 3 | Bitumen percentage | $\frac{A-B}{A} \times 100$ | 6.36 | 5.98 |
| 4 | Average percentage | % | 6.2 | |

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**Quality Manager**

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**Lab ID** : **CP-RW-2018-08-07-01** **Date: 08-08-2018**

**Sample ID** : **2018-08-07-01/02**

**AFTER EXTRACTION - Trail-1**

**Total Weight of the Sample(gm)** : 474

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 3 | 3 | 0.6 | 99.4 | 90-100 |
| 9.5 | 132 | 135 | 28.5 | 71.5 | 70-88 |
| 4.75 | 75 | 210 | 44.3 | 55.7 | 53-71 |
| 2.36 | 56 | 266 | 56.1 | 43.9 | 42-58 |
| 1.18 | 29 | 295 | 62.2 | 37.8 | 34-48 |
| 0.6 | 11 | 306 | 64.6 | 35.4 | 26-38 |
| 0.3 | 43 | 349 | 73.6 | 26.4 | 18-28 |
| 0.15 | 65 | 414 | 87.3 | 12.7 | 12-20 |
| 0.075 | 19 | 433 | 91.4 | 8.6 | 4-10 |

**AFTER EXTRACTION - Trail-2**

**Total Weight of the Sample(gm)** : 472

| IS Sieve Size (mm) | Weight Retained (gm) | Comulative Weight Retained (gm) | Comulative % of Retained | Comulative % of Passing | Secified limits as per MORTH specification table 500-23(grading-2) |
|---|---|---|---|---|---|
| 19 | 0 | 0 | 0.0 | 100.0 | 100 |
| 13.2 | 2 | 2 | 0.4 | 99.6 | 90-100 |
| 9.5 | 120 | 122 | 25.8 | 74.2 | 70-88 |
| 4.75 | 76 | 198 | 41.9 | 58.1 | 53-71 |
| 2.36 | 58 | 256 | 54.2 | 45.8 | 42-58 |
| 1.18 | 30 | 286 | 60.6 | 39.4 | 34-48 |
| 0.6 | 14 | 300 | 63.6 | 36.4 | 26-38 |
| 0.3 | 46 | 346 | 73.3 | 26.7 | 18-28 |
| 0.15 | 68 | 414 | 87.7 | 12.3 | 12-20 |
| 0.075 | 21 | 435 | 92.2 | 7.8 | 4-10 |

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